ANNUAL REPORT

1966

DIVISION OF CONSTRUCTION

New Jersey State Highway Department

IN REPLY PLEASE REFER TO

State of New Jersey

DEPARTMENT OF TRANSPORTATION

DAVID J. GOLDBERG, COMMISSIONER

TRENTON 08625

April 1, 1967

Commissioner David J. Goldberg

I am submitting to you the first Annual Report of the Division of Construction covering the period from its creation, July 1, 1965, to the end of the fiscal year, June 30, 1966.

The Division of Construction, upon its inception, immediately found itself faced with four tasks: organization, consolidation, highway construction and railroad construction. These functions were all undertaken simultaneously with the results to be noted in the following pages.

E.Y. Corson

E.Y. Corson
Director, Division of
Construction

ANNUAL REPORT

DIVISION OF CONSTRUCTION

FISCAL YEAR

July 1, 1965

June 30, 1966

AWARD OF MERIT

Route 172, Section 1C - Pedestrian Bridge over George Street, City of New Brunswick

Designed by the New Jersey State Highway Department, Division of Design

Constructed by the New Jersey State Highway Department, Division of Construction

General Contractor - John W. Thompson, Trenton, New Jersey

Steel Fabricator - Keystone Structural Steel, Trenton, New Jersey

The Division of Construction shares with the Division of Design the pride of accomplishment in having created this award winning structure.

This footbridge was commissioned by the officials of Rutgers University to serve co-eds walking between dormitories and class buildings on opposite sides of George Street (Route 172).

The bridge was entered in the American Institute of Steel Construction 1966 Prize Bridge Competition. On October 10, 1966, the Bureau of Bridge Design was notified that the entry had been named for an Award of Merit in the Special Type Bridge category.

HISTORY OF DIVISION

The Division of Construction is a new organization, having been created by Departmental Directive 9.012 on July 1, 1965. This Directive brought together two construction units, the Bureau of Bridge Construction and Bureau of Road Construction. The new Division was instructed to accomplish consolidation of road and bridge construction units and to oversee these consolidated units until the creation of Regions, at which time certain elements of the Division would be transferred to Regional control. In addition, the Division was instructed to create and place in action three new Headquarters Bureaus; the Bureaus of Construction Control, Construction Practices and Contract Administration.

How these three Bureaus were formed and how they function is described in the succeeding paragraphs. In the main, the Division devoted the year to carrying out the first instruction; consolidation, preparation for Regions, and at the same time, "watching the store". This work can be broken into three missions; planning, practicing and paper reorganization.

Planning began immediately. In this period, no change was noticeable, the Division functioned with seven independent bridge and road construction districts in the field. No change was discernible unless you looked at the Trenton headquarters where new tables of organization and new duty assignments were being prepared for the Acting Commissioner's consideration.

The planning period realized its climax in October 1965, when the practicing period began. We had decided to carry out the consolidation of bridge and road construction forces by designating certain new projects as combined projects to be operated without the old road and bridge separation but rather under the contemplated new regulations. The success or failure of these experimental projects would provide data for correcting the tentative tables of organization and duty assignments.

The paper reorganization period began as soon as feedback appeared from our experimental "combined" projects. The projects themselves continued to the end of the year; in fact some of them are still active. The data they furnished began to revise our thinking in January, 1966. At this time, the Division held a seminar for all Resident Engineers to discuss the progress of Regional organization, the new Division, and the experimental projects. The experimental projects and the paper organization previously created and revised by these experimental projects continued until July 1, 1966.

On July 1, 1966, the end of the period covered by this report, the Division of Construction field forces were reorganized into four construction districts. These districts, laid out to be as close as possible to the projected Regions, were placed in the hands of four former District Engineers, now designated District Construction Supervisors under authority of Departmental Directive 9.0121.

Thus, a year of planning, practicing and organizing ended, and in its place began a year of active practice with the new Districts and with the Bureaus of the Division of Construction.

BUREAU OF CONSTRUCTION CONTROL

This Bureau was created on July 1, 1965, in accordance with the recommendations of the report prepared by consultants to the Department. Under a Staff-Line organization as contemplated in this report, our duties could have been clearly defined and would be less complex than our present duties. In the absence of regions as contemplated, the Bureau found itself suddenly confronted with the processing of change orders, estimates and claims from bridge jobs, road jobs and the new combined jobs. In addition, we soon determined that an "Ad-Hoc" administration of the four construction districts was needed to function in lieu of Regional Engineers and to relieve the Director of Construction for more important duties in connection with planning and integration with regional plans. This Bureau was chosen for the "Ad-Hoc" control, releasing the Director and Bureau of Construction Practices for their role in planning the future of the Division and the Regions. The interim control has been further implemented by establishing a new position to include "Ad-Hoc" duties with the supervision of Railroad contracts.

BUREAU OF CONSTRUCTION PRACTICES

This Bureau started life on July 1, 1965, with a nucleus, the Headquarters Bridge District of the Bureau of Bridge Construction. This nucleus rapidly expanded into a ten man organization which immediately undertook the many missions of the Bureau; inspection-in-depth; off-site fabrication expediting; training, and technical publications. Inspection, or review teams were organized and began an experimental period in which they examined projects but did not file formal reports. The off-site fabrication team set up a complete steel fabrication overseeing unit that could determine progress of steel fabrication at any time, and most important, could furnish essential data relative to speed of fabrication in extension of time claims using such a plea. The training cadre took over the Winter'66 Inspector's Training School and conducted it successfully. They also provided steel inspection training for the Division of Materials and construction inspection training for the Division of Maintenance. The publication section, at the request of the Bureau of Public Roads, undertook an immediate revision of one chapter of the Inspector's Manual and started a long range, complete overhaul of the entire Manual. This section also took over the writing and issuing of Division Bulletins and the updating and issue of Division reporting forms.

The end of the year found the Bureau moving into new fields. As a member of the Department Materials Committee and the Department Equipment Committee, the Bureau undertook with the Division of Research, the study and evaluation of new materials and methods of construction and of new ideas in construction equipment. We also undertook, with the Division of Design, various studies leading to improvements in our present specifications and design standards. The coming year will show further effort in these new fields as well as in our older duties.

BUREAU OF CONTRACT ADMINISTRATION

The Bureau of Contract Administration was established in the Division of Construction on July 23, 1965, by Commissioner Palmer through Departmental Administrative Directive No. 9.014.

All of the operations of the Contractor's Classification Office were transferred from the Office of the Comptroller together with the functions of advertising for bids; distribution of Standard Specifications; the non-Departmental distribution of construction plans and supplementary specifications; the non-Departmental distribution of addenda; the receipt of bids; the tabulation of bids; the preparation of information necessary for the award of contracts; and the preparation of, execution and distribution of contracts which were removed from the Office of the Department Secretary.

The problem of planning for and effecting the transfer of the functions formerly under the Office of the Department Secretary were resolved and on December 27, 1965, the Bureau assumed responsibility for all of the work encompassed in Directive 9.014. Revision of forms and the streamlining of operations and procedures have been slowed by difficulty in procurement of personnel and of office furniture and equipment. The physical layout has been on a temporary basis situated in two widely separated offices. When the planned move to consolidate offices is accomplished, all of the activities will be coordinated.

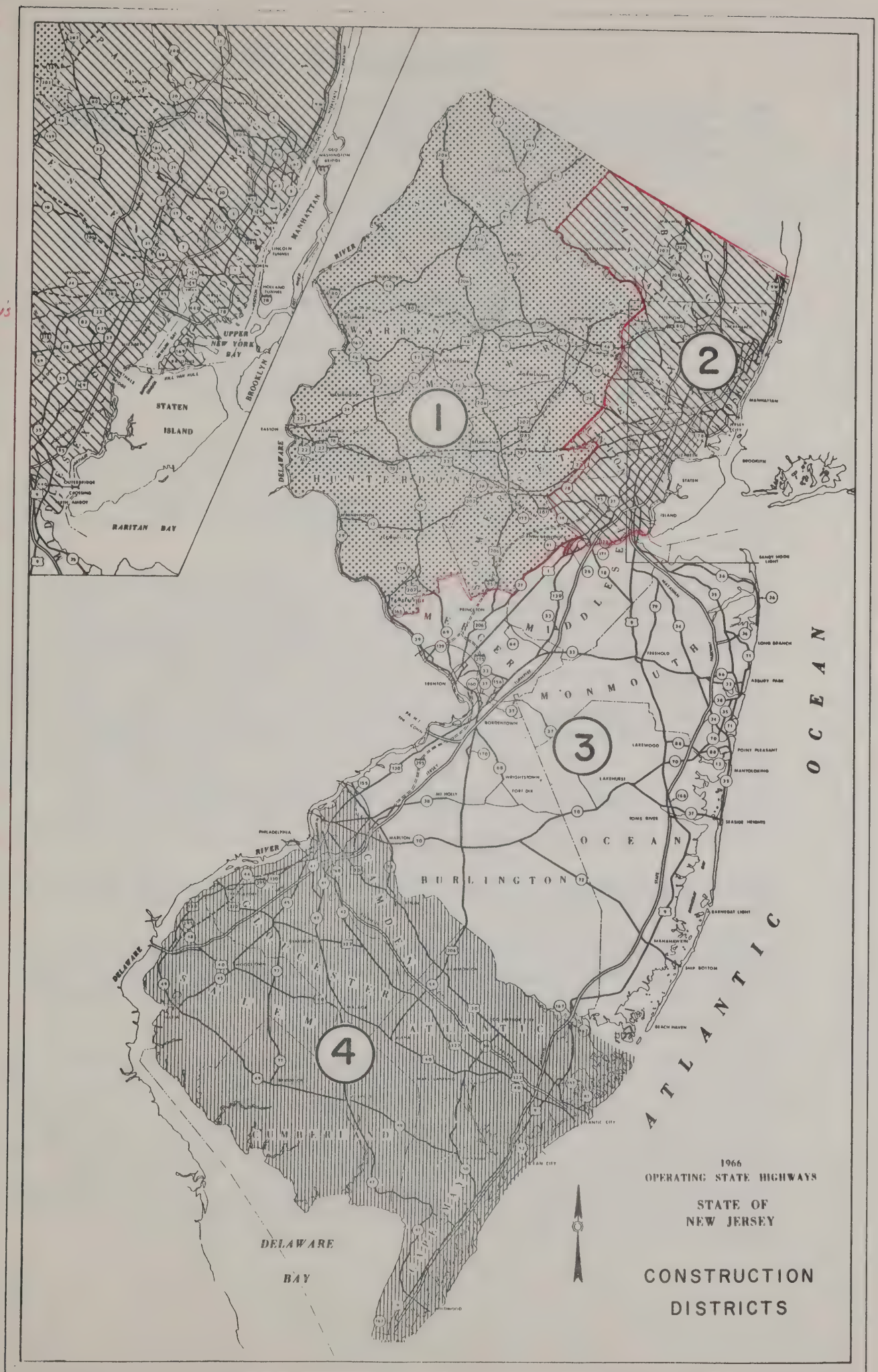
Statistics for this first annual report would be misleading because it covers a period of slightly more than six months. Suffice to say that all operations necessary to accomplish the functions of the Bureau have been completed.

#1 COUNTY'S
SUSSEX
WARREN
MORRIS
HUNTERDON
SOMERSET

#2 COUNTY'S
BERGEN
PASSAIC
ESSEX
HUDSON
UNION

#3 COUNTY'S
MIDDLESEX
MERCER
MONMOUTH
OCEAN
BURLINGTON

#4
CAMDEN
ATLANTIC
GLOUCESTER
SALEM
CUMBERLAND
CAPE MAY



1966
OPERATING STATE HIGHWAYS

STATE OF
NEW JERSEY

CONSTRUCTION DISTRICTS

OUTSTANDING JOBS

The most outstanding work in the year 1966-1967, occurred mainly in the Northeast Quadrant of the State, our Construction District #2. Of the many outstanding jobs, a few are presented below.

Interstate Route I-280 Projects

This project has been designed to connect Route I-80 at Pine Brook with the New Jersey Turnpike in the Secaucus Meadows. To do this, the road must be carried through the cities of Newark, Kearney, East Orange, Orange and West Orange. The work carried on in 1966-1967 consisted of the difficult depressed roadway in East Orange and Orange, tricky rock cuts in West Orange, important crossings of the Erie-Lackawanna Railroad and of the Garden State Parkway and the drainage tunnel. These projects are described below.

Route 280, Section 5F, 6B, 7A
Route 280, Section 7B

On Route 280, Sections 5F, 6B and 7A, and Route 280, Section 7B, the longest bored tunnel in New Jersey - 4.29 miles - was built at a cost of more than $2 million a mile.

The tunnel has a circular cross section of 8 feet in diameter, with a wall thickness of 1 foot. Depth below existing ground level ranges from 35 feet to 73 feet and averages about 60 feet. The first 2300 feet of its length is at what would be considered a reasonable depth for constructing such a drain by the open cut method, but the contractor elected to tunnel this section as well. At this location of I-280, the route is depressed in order to avoid creating a "Chinese Wall" in the cities and to pass under the Garden State Parkway. Without prior construction of the tunnel, Route 280 would be a deep lake, both during and after its construction. The tunnel will carry water from the project and take it to an outfall in the Passaic River.

Route 280, Section 5J

This project involves the construction of a railroad bridge over Interstate Route 280 in the city of Orange, Essex County.

An unusual feature of construction is that the superstructure is to be built on temporary supports to permit it to be rolled into place when completed. The superstructure is composed of riveted steel girders supporting a concrete deck and concrete walks.

The railroad will maintain all three main lines during construction, on a temporary structure carrying the tracks while the new bridge is being built. The substructure of the new bridge will be built under the temporary structure, without interference with rail traffic. When the substructure is complete, the temporary structure carrying the railroad will be removed, and the finished superstructure, built in several sections, will be rolled into place. This method of placing the superstructure was last used by the New Jersey Highway Department on the Trenton Freeway in 1958.

Route 280, Section 3B, 4C

Interstate Route 280, Section 3B & 4C, located in the town of West Orange, consists of grading, drainage, paving and bridges over 1.507 miles at a cost of 4.7 million dollars. An interesting aspect of the contract involves blasting an open cut through the 460 foot high First Mountain. The cut runs approximately 130 feet deep at its deepest point, and involves removal of about 1,000,000 cubic yards of rock. This is one of the deepest highway cuts east of the Rocky Mountains.

A relatively new method, pre-splitting, was applied to the job of blasting the open cut. This method resulted in a clean rock face and saved construction time.

The shot rock was trucked to the western end of the project where it was used as fill.

Also included in the project are a culvert and four bridges requiring 5100 cubic yards of concrete, and 680,000 pounds of structural steel.

Route 280, Section 6E
Route 280, Section 6D

Route 280, Section 6E, involves excavation, drainage, incidental paving, bridges and walls in the vicinity of the Garden State Parkway. The Parkway, a six lane divided roadway is approximately eighteen feet below grade at the point where I-280 will pass under it twenty feet deeper.

Excavation on this section included the pre-splitting method of blasting for the open cut and for curtain wall construction of retaining walls.

Bridge structures on this project include five underpasses, one overpass, retaining walls and sign structures costing 2.8 million dollars. Anticipated completion date for this section is September, 1967.

Section 6D, west of the interchange, involves grading Route 280 for future paving, construction of ramps, building demolition, roadway excavation and other work, for a distance of 0.761 miles at a cost of 4.6 million dollars. This project includes six overpass bridges, retaining walls and wingwalls. Construction began December, 1964, and specified completion time is 400 working days.

The excess project excavation will be trucked to the Route 78 Interchange.

Port Street Interchange Projects

The Port Street Interchange, where approaches to Newark Airport and Routes 1, 9, 21, 22, I-78 and the New Jersey Turnpike all meet will long rank as the most complicated construction project in our history. It will include twenty six bridges and a long viaduct and more than forty miles of traffic lanes as it comes around Newark Airport. As a further complication of the planning of traffic control during construction, the Route 21 viaduct will be repaired in the same period. The year 1966-1967 saw the beginning of this project with the jobs described below.

Route 78, Section 5T

Route 78, Section 5T, is a 1.2 mile project located adjacent to Newark Airport. Work under this contract consisted of excavation of wet material and placing of suitable material, to bring fill level above water at a cost of 6.2 million dollars. Bridge work under this contract consisted of 1812 feet of steel sheet piling for a bulkhead at a cost of $406,000.

Route 78, Section 5V

Route 78, Section 5V, extends from just east of Route 21 eastward to Adams Ditch in Newark, Essex County. The project includes seven bridges having a total of 28 on and off ramps. Cost will be 4.28 million dollars.

Route 78, Section 5Y

Route 78, Section 5Y, a viaduct crossing the Waverly Yards of the Pennsylvania Railroad, consists of the largest viaduct in the State and one of the largest in the country. It will be a composite viaduct of structural steel beams supporting reinforced concrete deck slabs, with an overall length of 1,558 feet, and a width of 200 feet.

The viaduct will require nearly twelve million pounds of structural steel, five million pounds of reinforcing steel and 25,000 cubic yards of concrete. The sub-structure will be supported by more than 30,000 linear feet of cast-in-place concrete piles and 200,000 linear feet of treated timber piles.

STATISTICS

The Division of Construction has chosen to abandon the old reporting system of both Bureaus of Bridge Construction and Road Construction; a system which abounded in voluminous statistics of great value to some but little value to many. For the some, the detailed statistics are still available. For the many, we present a consolidation of our activities.

	Number of Projects	Dollar Value
Projects under way at the opening of fiscal year, July 1, 1965.	62	$125,000,000
Projects awarded in fiscal year - 1965-1966. (See following sheet).	45	$ 57,634,706
Projects completed and accepted in fiscal year 1965-1966. (This figure includes some projects completed in fiscal 1965 but not settled). (See following sheet).	48	$ 97,133,402
Projects under way at close of fiscal year June 30, 1966.	54	$114,617,083

PROJECTS AWARDED BETWEEN

July 1, 1965 - June 30, 1966

Rte./Sec.	Type of Construction *	County	Date of Award	Amount of Contract
27/6C	D	Middlesex	7/2/65	18,935
Aldene #4	GS-CF-RR	Union	7/2/65	1,417,082
287/7C	G-P-B	Morris, Somerset	7/29/65	5,862,817
Planting #1	L	Mercer, Monmouth, Middlesex, Union	8/5/65	68,417
1 & 9/1B & 2F	B	Essex, Hudson	8/12/65	104,478
38/1F & 2C	IR	Burlington, Camden	8/12/65	3,430,480
70/14A	DU-R-B	Ocean	8/12/65	491,633
80/4S	G-P-B	Passaic	8/27/65	8,742,311
29/5A & 6A	L	Hunterdon	9/3/65	12,522
78/5J	G-D-B	Union, Essex	9/3/65	10,467,679
47/11A	D	Cumberland	9/22/65	15,965
295/1U & 2M	F	Camden, Burlington, Gloucester	9/24/65	87,741
280/3B & 4C	G-D-B	Essex	9/28/65	4,710,146
33/5A	DU-R	Monmouth	10/1/65	334,156
Planting #3	L	Burlington, Camden	10/8/65	60,602
278/1C	IP-D-UC	Union	10/8/65	715,408
55/5A & 6A	G-B-IP	Cumberland	10/11/65	904,320
440/2D	WE	Hudson	10/19/65	1,931,803
169/1A	SD-G-D	Hudson	10/19/65	544,934
32/1A	G-D-P	Middlesex	10/19/65	618,721
46/9B	W-R-T	Morris	11/16/65	378,899
34/5A	IR	Monmouth	11/16/65	46,968
46/18A	B	Passaic	11/29/65	95,638

295/2N	MC	Camden, Burlington	12/2/65	17,008
278/1E	DB	Union	12/7/65	123,409
Aldene #5	G-P-B	Union	12/7/65	908,660
30/14B	RC	Camden	12/17/65	102,151
280/5J	G-D-B	Essex	2/10/66	1,860,943
30/5B and 9/13B	D	Atlantic	3/2/66	88,348
22/11D	T	Somerset	3/2/66	34,840
80/4AB	PO	Passaic	3/2/66	72,855
1 & 9/2K	GR	Essex	3/8/66	27,440
24/9A	G-P-D	Morris	3/8/66	16,950
76/1D	DE	Camden	3/14/66	156,400
76/3A	F	Camden	3/22/66	21,709
280/5D	DB	Essex	3/23/66	97,900
73/3A	D	Burlington	4/6/66	39,472
17/5D	IR	Bergen	4/11/66	261,750
21/4B	DB	Bergen	4/11/66	363,222
1 & 9/1C	B	Hudson	5/10/66	974,154
47/1A	L	Cape May	5/12/66	18,627
82/1D	L	Union	5/13/66	12,357
7/1C	WR	Hudson	5/26/66	436,055
78/2M & 3E	G-P-D-S	Hunterdon	5/27/66	6,652,090
78/5V	B-IP	Essex	6/17/66	4,286,711

*

B - Bridges
C - Culverts
D - Drainage
F - Fences
G - Grading
L - Landscape
P - Paving
R - Resurfacing
S - Signs
T - Turnarounds
W - Widening
BC - Barrier Curb
CF - Commuter Facilities
CH - Channalization
CL - Creeper Lane
DB - Demolition of Buildings
DU - Dualization
GR - Guard Rail
GS - Grade Separation
IP - Incidental Paving
IR - Intersection Revision
MC - Median Crossovers
PO - Pedestrian Overpass
RC - Ramp Connection
RH - Roadway Rehabilitation
RR - Railroad Trackwork
SD - Sand Drains
UC - Utility Construction
WE - Wet Excavation
WL - Walls

PROJECTS COMPLETED AND ACCEPTED BETWEEN

July 1, 1965 - June 30, 1966

Rte./Sec.	Type of Construction *	County	Date of Acceptance	Contract Amount
287/12D, 13C & 14B	S	Morris	8/5/65	93,194
35/8A	W-IR	Monmouth	8/5/65	162,974
80/5Y	S	Bergen	8/12/65	212,600
287/10C	DB	Morris	8/20/65	9,954
78/2J	P	Hunterdon	9/14/65	2,127,704
80/1B & 2L	G-P	Morris	9/17/65	3,454,000
208/3D	RG	Bergen	9/20/65	54,948
287/6C	G-P-B	Somerset	9/20/65	2,118,825
80/5F	G-D-WL	Bergen	9/24/65	3,913,510
35/6B	DU-R-T	Monmouth	9/24/65	135,357
295/1M	G-B	Salem, Gloucester	10/14/65	2,857,100
5/1B	D	Bergen	10/14/65	41,902
49/9A	CH	Cumberland	11/5/65	69,779
287/5D	G-P-B	Somerset	11/18/65	3,394,804
69/1A	DB	Mercer	12/7/65	2,750
4/3H	W-R	Bergen	1/31/66	210,638
1 & 9/2D	RH	Essex	1/31/66	383,255
35/10B	W-R-BC-B	Monmouth	1/31/66	964,072
Landscape Screen Planting #1	L	Mercer, Middlesex, Monmouth, Union	1/31/66	68,417

24/3A & 4A	R-CL	Warren, Morris	2/3/66	218,888
29/5A & 6A	L	Hunterdon	2/7/66	12,522
1 & 9/4E	BC	Union	2/8/66	76,052
80/4F	G-P-B	Bergen	2/9/66	5,056,469
287/5F & 6B	G-P-B	Somerset	2/11/66	4,228,587
29/12C	L	Mercer	2/11/66	2,239
46/5B & 6A	W-R-T-C	Morris	2/21/66	709,621
46/5A	W-R-B	Morris	2/24/66	1,248,497
27/9A	RH	Union	2/24/66	43,039
280/3A & 4A	G-D-P-B	Essex	2/25/66	2,110,318
280/6C	G-P-B-WL	Essex	2/25/65	1,254,718
42/14J & 15F	W	Camden	3/3/66	411,541
38/1C	W-R-BC	Camden	3/3/66	3,647,358
80/3E	G-D-B-C	Morris, Essex	3/3/66	3,731,094
280/4F & 5N	DB	Essex	3/3/66	22,423
15/7A	DU-B	Morris	3/25/66	1,678,337
280/5F, 6B, 7A	D	Essex	4/4/66	8,789,231
27/6C	D	Middlesex	4/5/66	18,935
95/1G	G-P-B	Bergen	4/6/66	10,957,308
95/1E	G-D-B-IP	Bergen	4/25/66	7,897,320
287/1E, 4B, 5B	G-P-B	Somerset	4/27/66	5,740,400
3/1E	G-P-R-B	Bergen	5/9/66	4,079,083
69 & 202/2A	DU	Hunterdon	6/8/66	1,549,556
21/5A	G-P-B-WL	Essex	6/14/66	4,651,569
46/11C	IR	Morris	6/14/66	92,646
18/6B	DU-T	Middlesex	6/21/66	1,023,546
287/9A & 10A	G-D	Morris	6/24/66	506,805
70/1B	W-R-B	Camden	6/29/66	1,636,119
80/4G	G-P-B-W	Bergen	6/29/66	5,463,398